

Proposal Part B

Specific Support Action

Proposal full title	Regional railway transport research and training centre foundation
Proposal acronym	RRTC
Date of preparation	21 September 2004

List of participants:

No.	Organisation name	Country
1	University of Transport Sofia	Bulgaria
2	Faculty of Mechanical Engineering Kraljevo, University of Kragujevac	Serbia and Montenegro

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Proposal summary page

Proposal full title	Regional Railway Transport Research and Training Centre Foundation
Proposal acronym	RRTC

Research areas/ topics addressed:

Order	Research area/ topic addressed
1	SUSTDEV-2
2	SUSTDEV-2.2
3	SUSTDEV-2.1

Proposal abstract:

The aim of the project is to found an international research and training centre in the field of railway transport, which will integrate the efforts for developing modern, competitive, safe and comfortable railways on the Balkans.

The Center will be based at the Todor Kableskov University of Transport in Sofia. The participants in the project will elaborate its statute, structure, organization and strategy oriented to enlarge the scope of integrated research and training activities in the field of surface transport. The Center will be open for membership to all research and educational institutions in the region.

The RRCT will provide the necessary human and information resources; will organize conferences and seminars on topical issues connected with the Trans-European transport corridors passing through the region; will enable the exchange of scientific information and staff; will develop new university courses in compliance with the requirements of ECTS (European Credit Transfer System) and courses for long life training; will create working and expert groups and coordinate the research and technical activities for achieving sustainable railway transport on the Balkans.

B.1 Objectives of the proposed project

The aim of the project is to found Regional Railway Transport Research and Training Centre (further it will be called RRTC or the Centre). It will be a joint international institution, the mission of which is to coordinate and co-operate the research and educational efforts of the institutions for transport staff training in Balkan countries.

The Centre should enhance the potential of scientists working in the field of railway transport, both with universities and research institutions in the Balkan countries. The cooperation and coordination is of great importance because the railway transport in the region is underdeveloped and uncompetitive. The activities of the working and expert groups will contribute to standardization and harmonization of the railway system with the European one.

The Center will activate the interaction of the Balkan specialists in applied sciences and transport engineering, which did not exist due to various reasons (historical, organizational, etc.) for a long period except during the last few years. The first contacts were established at international conferences, joint Tempus projects, etc. In June 2002 the University of Transport organized a regional meeting of some universities in the Balkan region within the project called ***Regional Program of Transport Staff Qualification*** developed by the university and supported by the Open Society Fund. The Center will be also a kind of continuation of another project, ***Interdisciplinary Approach in Engineering Education***, partially supported by the World Bank and completed by five Bulgarian universities, among them the University of Transport, a few months ago.

The main activities of the Centre will include:

- Identification of the needs and problems of railway transport development in the region;
- Creating information databases of the European standards for high-speed, safe and ecological railway transport; of the experience of the European countries in increasing the railway transport attractiveness; of the human resources and research activities in the field of transport on the Balkans;
- Study on the experience of the structures (organizations) in the EU member countries in the field of research and transport staff qualification;
- Collaboration in research on topical issues of common interests of the Balkan countries;
- Forming working and expert groups to further develop joint research projects;
- Developing innovative methodology of testing and examination of railway equipment and infrastructure;
- Development of courses intended for training transport staff with university degrees and long life qualification;
- Organizing seminars and workshops on topical issues connected with the implementation of Trans-European transport corridors system;
- Support of the publishing activities of scientists and the Center itself.

The regulations of the Center performance should be based on the experience of similar institutions existing in the EU member countries and in the world. Prior to its foundation it is necessary to develop the following documents:

- Statute;
- Strategy;
- Work Program;
- Website.

B.2 Relevance to the objectives of the Sustainable Surface Transport Priority

The purpose of the project is to integrate the efforts of the research and training institutions in the Balkan region to meet the needs of surface transport development according to the EU requirements. It complies completely with the objectives of the Sustainable Surface Transport Priority as well as with the general ideas of FP6 programme. The regional organization planned to be established within this project will enable further collaboration in the field research and transport staff training. The RRTC should provide dissemination of scientific results and experiences of the participants from Bulgaria and Serbia and Montenegro as well as in other Balkan countries. Encouraging the international cooperation, the Centre will be a certain contribution to the European Research Area.

Joining the Centre, the institutions will be able to use its information databases and human resources to cooperate in projects connected with the European policy of increasing the attractiveness of railway transport. The Center activities will be oriented to developing new methods of testing and maintenance of rolling stock and implementation of new technologies to provide competitive, high-speed, safety and reliable railways in the region. Special attention will be paid to reduction of traffic congestion (especially on Corridor 10 as a bottleneck of the Balkan transport routes) because of the problems existing with crossing the border lines between the neighboring countries. The expected results of the joint research will be a base to apply them for achieving the final aim: sustainable surface transport on the Balkan peninsular, which has always been an important crossroad in Europe.

The project objectives refer mainly to railway transport and are relevant to the objectives 1 and partly 4 as stated in the section for Objectives, Structure and Overall Approach in Work Program as follows:

A. To objective 1, *New technologies and concepts for all surface transport modes (road, rail and waterborne)*:

- Establishing a Regional Railway Transport Center developing research and training activities on the base of experience of joint (regional) organizations in the EU member countries for research and transport staff qualification;
- Integrating the efforts of scientists and university teachers from the University of Transport in Sofia, Bulgaria and the Faculty of Mechanical Engineering in Kraljevo, Serbia and Montenegro as well as from other similar institutions in the region to solve topical problems of common interests of the Balkan countries in the field of surface transport and especially of the railways;
- Identification of the needs and problems of railway transport development in the region on the base of the comparison between the its current state and the European standards for high-speed, safe and ecological railway transport of the experience of the European countries in increasing the railway transport attractiveness;
- Forming working and expert groups to develop joint research projects as a result of the Human Resources database created by the Center;
- Support of the publishing activities of scientists and the Center.

B. To objective 4, *Increasing road, rail and waterborne safety and avoiding traffic congestion*:

- Developing innovative methodology of testing and examination of railway equipment and infrastructure aiming at increasing the safety, reliability and comfort of railway transport;
- Development of courses for training transport staff with university degrees and long life qualification according to the increasing requirements to specialists;
- Organizing seminars and workshops on topical issues connected with the implementation of Trans-European transport corridors system.

B.3 Potential impact

It is expected that the implementation of the project will enable the integration of research and training activities for sustainable railway transport in on the Balkans.

At present the state of this mode of surface transport in the region is far behind the achievements of the EU member countries. The integration of the railways in the Balkan countries to the European railway system will be possible only after their rehabilitation and modernization. It imposes the necessity to implement new technologies and concepts in the transport section that is a challenge to universities and other research and educational organizations. The integration of their efforts for harmonizing the railway transport development with the European standards and requirements can be made more efficient by establishing a regional research and training center.

The Centre activities will improve the quality of research by:

- Availability of databases necessary for development of research projects;
- Possibility of more rational allocation of human resources;
- More reasonable allocation of human resources;
- Access to equipment and information of partner institutions;
- Exchange of information, teaching staff and researchers;
- Participation in national, regional and international transport projects;
- Dissemination of results in applied sciences and technologies in the region and Europe;
- Collaboration with other European research and educational institutions.

The coordination and cooperation in research and training will have a positive impact on the railway transport and industries in the region. The new methods and technologies developed can be implemented simultaneously in the partner countries thus achieving the aim of harmonization of the Balkan railways with the European transport system.

The information resources of the Center will be available not only to the joint working and expert groups, but also to a larger community of transport specialists through the university courses and the courses for life long training. The Center will carry out constant connection between science, teaching and practice, which is of great importance for the efficiency of education and especially of engineering university programs. The Centre is to provide a certain support to postgraduate studies by staff and students exchange both on the Balkans and in the EU member countries.

Striving to be a respectable international institution, the Centre will influence on the policy of the railway transport rehabilitation and modernization in countries of region more than each institution acting independently. Having summarized the nation and regional priorities in the surface transport development, the RRTC will be able to propose relevant decisions to solve the most important problems and carry out national and regional projects to achieve the objectives of the EU transport policy. On other side, it will be of great help in organizing the traditional scientific conferences on transport issues and new ones, in disseminating the best experience and results of research and training by publishing and electronic means.

At last, the cooperation in research will surely contribute to the process of reintegration in the region. The foundation of a regional research and training center will have an impact not only on the transport development, but also on the international relations on the Balkans as a whole. This project, which has been developed by two universities aiming to join other participants from all Balkan countries, is a hopeful sign of the changes for good in the political and economic realities in South-Eastern Europe.

B.4 The consortium and project resources

The project will be implemented by the Todor Kableshkov University of Transport in Sofia, Bulgaria in partnership with the Faculty of Mechanical Engineering in Kraljevo, University of Kragujevac, Serbia and Montenegro. The two institutions have signed Agreement of Collaboration recently and this project is the first one developed jointly by them.

1. University of Transport in Sofia, Bulgaria

The Todor Kableshkov University of Transport in Sofia (UT) is a unique institution of this type in a wide area including the Balkan and other countries. It was established in 1922 and throughout the years after since has proved to be an important national training and research center in the field of surface transport.

The University comprises of two faculties (schools) and Transport College. They offer courses for the university degrees of Specialist, Bachelor, Master and Doctor in 8 programs: Transport Machines and Technology, Technology and Management of Transport, Engineering Logistics and Construction Machines, Transport Engineering, Telecommunications, Power Engineering and Electrical Equipment, Industrial Management (only for the degree BSc) and Accountancy and Auditing (only for the degree of Specialist).

The academic staff of the UT consists of more than seventy teachers with academic ranks who are prominent specialists with prestige in the fields of their research. Most of the teachers without academic ranks have the university degree of Doctor or work on their doctoral thesis/papers.

The UT equipment includes four school buildings with 22 specialized rooms, 49 laboratories, 75 classrooms, language and computer rooms and a simulator complex. The local computer network has a satellite connection with INTERNET. The library provides more than 150 000 volumes of textbooks and handbooks, scientific and fiction literature for students. The university provides 2 hostels for students where there are a number of guest rooms, a canteen, cafes, playgrounds and equipment for sport activities. All they are located within a campus.

The school equipment and the teaching staff present great possibilities of training specialists for all modes of land transport including handling equipment and combined transportation through modern and ferry devices as well as for performing all activities: operation, maintenance, repairs, construction, etc. The experience accumulated and the traditions established in teaching and the knowledge assessment of transport specialists of all levels and in all programs are guarantees of the high quality of professional training, which has been proved by most of the school graduates. It is also of great importance to mention that before joining the school staff, many of the teachers worked in research, designing, operational and manufacturing institutions and enterprises where they were leading specialists in transport designing, testing, production and operation.

The wide-profile training of graduate and post-graduate students allows them to find suitable jobs in all modes of surface transport as managers or executives, in telecommunications, building industry, transport infrastructure. Both the horizontal and vertical mobility gives them also a possibility to continue training in other fields of science.

The University of Transport carries out a lot research in the field of transport and transport infrastructure contributing much to improving the surface transport system of Bulgaria. The university has taken part in a number of competitions within the European programs such as Leonardo Da Vinci, Copernicus and TEMPUS. It has also completed other projects supported partially by the Open Society Foundation and World Bank.

From the projects completed by now, the most useful as an experience for the RRTC foundation are **Regional Program for Transport Staff Qualification** and **Interdisciplinary Approach in Engineering Education**. The first of them helped the UT to establish connections with some educational institutions, the representatives of which met at the first meeting on transport staff training on the Balkans in June 2002. The second project resulted in considerable improvement of teaching, which will increase the potential of human resources with abilities to develop research and apply scientific achievement in practice.

The university has been developing traditional partnership with other institutions of higher engineering education from the country and abroad as well as with well-known European research centres in transport and telecommunications. The relations with foreign academic institutions have always been among the priorities of the University of Transport. The international collaboration includes developing common projects and courses, exchange of students and teachers. The traditional international contacts involve a number of famous universities in Russia, Czech Republic, Slovakia, Germany, France, Macedonia, Serbia and Montenegro, Byelorussia, Ukraine, Poland, Italy, the Netherlands.

The project of the RRTC foundation will give a new impetus to international relations in the field of research and education and will contribute to orient the efforts of the academic staff to the current needs in the surface transport development to meet the EU requirements of integrating the transport system on the Balkans with the European one.

2. Faculty of Mechanical Engineering in Kraljevo, University of Kragujevac, Serbia and Montenegro

The Faculty of Mechanical Engineering Kraljevo (MFK) is part of University of Kragujevac, sited in Central Serbia. The Faculty is located at town Kraljevo, where the roads and railroads cross from north to south and from west to east of Serbia. Development of the Faculty has been closely related to development of industry in the surroundings. The Faculty has around 50 employees and 300 students, and according to laws of Serbia and Montenegro is an independent legal subject.

The Faculty is in close neighbourhood of the Wagon Factory Kraljevo, which was one of the largest manufacturers of freight wagons in the world until recent wars in ex-Yugoslavia. Due to this fact, the cooperation between the Faculty and the factory was close and fruitful, resulting in development of Department for Railway Vehicles as an educational unit and Railway Vehicles Centre as a research unit of the Faculty.

The Railway Vehicles Centre is a research institution, which is part of the Faculty, but it has possibility to engage researchers outside the Faculty in its projects. The current team of the Railway Vehicles Centre consists of 5 researchers and 5 technicians. The main topics of research interests of the Centre are railway vehicles structures computation and testing. The Centre has all equipment necessary for static and dynamic experimental investigations on railway vehicles, and is the only institution in Serbia licensed to perform railway vehicles tests required to approve new and modified railway vehicles. The Railway Vehicles Centre has performed examinations of more than 100 railway vehicle types, developed specialized devices and methodology for railway vehicles testing based on international regulations. The results of research were published in more than 300 papers in Serbia and abroad.

The fact that it unites research and education activities, experience in organization of research work, the decades of work on the whole territory of ex-Yugoslavia, the wide network of contacts in railway transport companies and systems make Railway Vehicles Centre of Faculty of Mechanical Engineering a worthy and competent member of the consortium that is to develop joint railway transport research and development centre for Balkans.

Faculty of Mechanical Engineering is ready to support the project and the joint Centre through engagement of personnel, room and equipment included in Railway Vehicles Centre including usage of the communication resources (phone, fax, permanent access to Internet) of the Faculty. Besides, the Faculty will allow for usage of Information Technology Centre human and material resources as support to the project in phases where such support is needed.

SSA Project Effort Form
Full duration of the project

	Partner 1 UT	Partner 2 MFK	Partner 3 short name	Partner 4 short name	Partner 5 short name	etc	TOTAL (ALL PARTNERS)
Support activities							
WP1 Establishment of the Centre	6	3					9
WP2 Human resources providing and staff training	10	5					15
WP3 Research activities	34	14					48
WP4 Management	-	-					-
Total management activities	40	13					53
Management activities							
WP1 Establishment of the Centre	8	2					10
WP2 Human resources providing and staff training	9	2					11
WP 3 Research activities	5	3					8
WP4 Management	18	6					24
Total support activities	50	22					72
TOTAL (ALL ACTIVITIES)	90	35					125

B.5 Project management

The project will be managed by the core team assisted by 4 WP teams. The decisions will be made with consensus in compliance with the regulations of FP6 and the national legislation.

The core team will consist of 8 people, 5 from the UT in Sofia and 3 from the MFK, Kraljevo:

1. Dobrinka Atrmadzhova, Ph.D., Senior Lecturer, Coordinator (UT)
2. Anna Dzhaleva-Chonkova Ph.D., Senior Lecturer (UT)
3. Margarita Georgieva, MSc., Senior Lecturer (UT)
4. Assoc. Prof. Borislav Benchev, Ph.D. (UT)
5. Assoc. Prof. Nencho Nenov, Ph.D. (UT)
6. Prof. Ranko Rakanovic, Ph.D. (MFK)
7. Doc. Dragan Petrovic, Ph.D. (MFK)
8. Doc. Zlatan Soskic, Ph.D. (MFK)

To manage the work packages there will be formed four teams, respectively for:

- **WP1:** RRTC Foundation Committee

Honorable chair: Rector of University of Transport, Sofia*

Co-chair: Rector of University of Kragujevac*

Secretary: Dobrinka Atrmadzhova (UT)

Members: core project team

- **WP 2:** Team leader: Anna Dzhaleva (UT)

Members: Margarita Georgieva (UT); Zlatan Soskic (MFK)

- **WP 3:** Team leader: Dobrinka Atrmadzhova (UT)

Members: Nencho Nenov (UT); Borislav Benchev (UT)

Ranko Rakanovic (MFK); Dragan Petrovic (MFK)

- **WP 4:** Team leader: Margarita Georgieva (UT)

Members: Borislav Benchev (UT); Zlatan Soskic (MFK)

The WP teams should coordinate their decisions and activities each other and with the core team. Both they and the core team can associate consultants and technical personnel to accomplish the tasks planned and involve other members in the activities of the Center. The possibility of enlarging the WP teams will be regulated by the rules of partnership included in the RRTC statute.

***Note:** The Foundation Committee will be chaired by people who will be at the position of rectors at the moment of the project start.

B.6 Workplan

a) Workplan introduction

The plan is designed in a way to enlarge the scope of the Centre activities gradually through the development of the project. The leading idea is to open the Centre for all institutions dealing with research and transport staff training. The consortium partners should popularize the possibilities of joint work in the other Balkan countries thus making the RRTC activities relevant to its regional character.

The Workplan contains four work packages, including the Management and Dissemination WP:

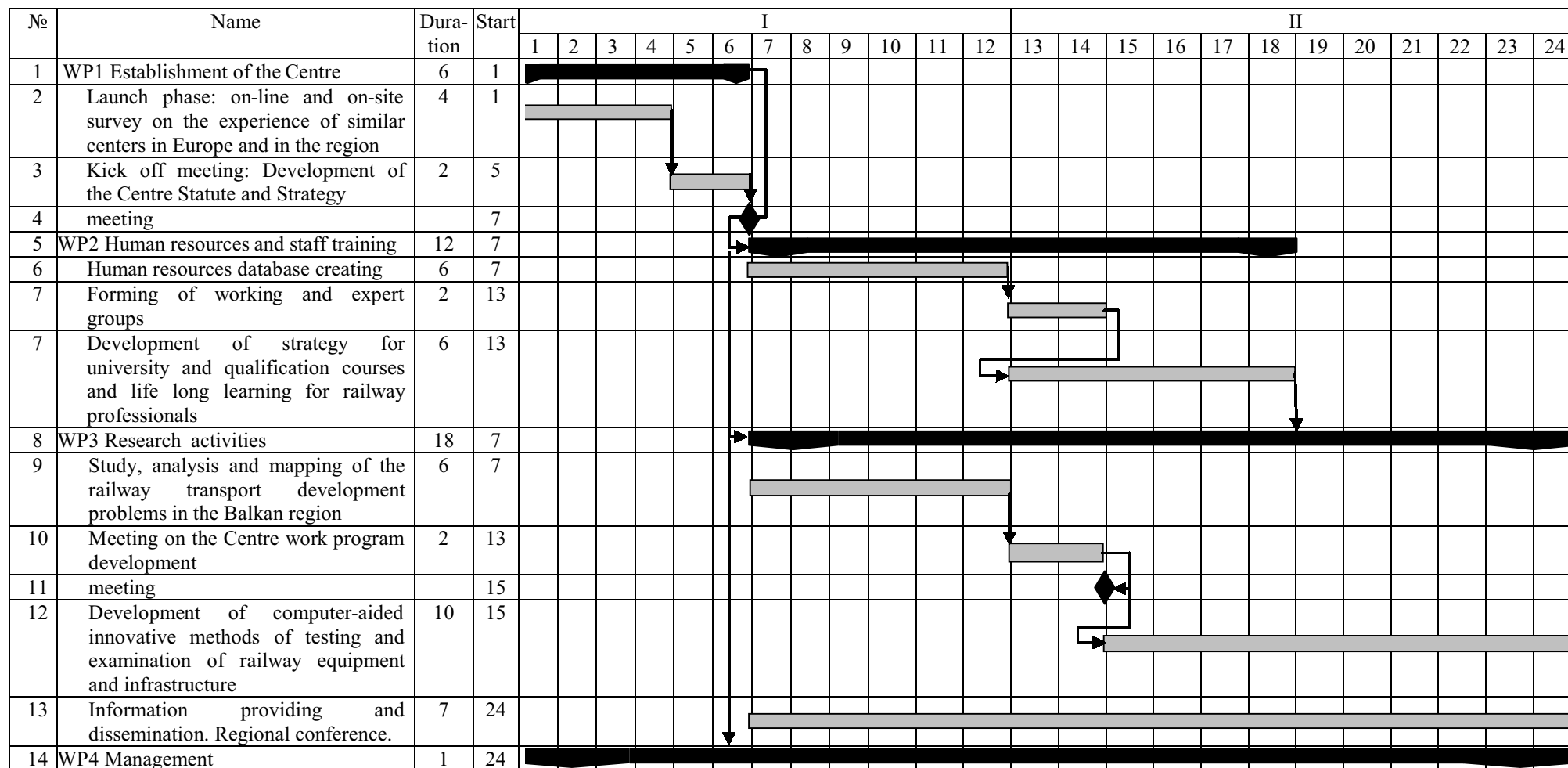
- **WP1** covers the preparatory phase. It includes a study on the experience of similar institutions in the EU member countries as a support activity and developing the Center documents and organizing a kick-off meeting as management activities. The approval of the Center Statute and Strategy by the participants at the meeting will result in RRTC foundation and open it for new members from the Balkan region.

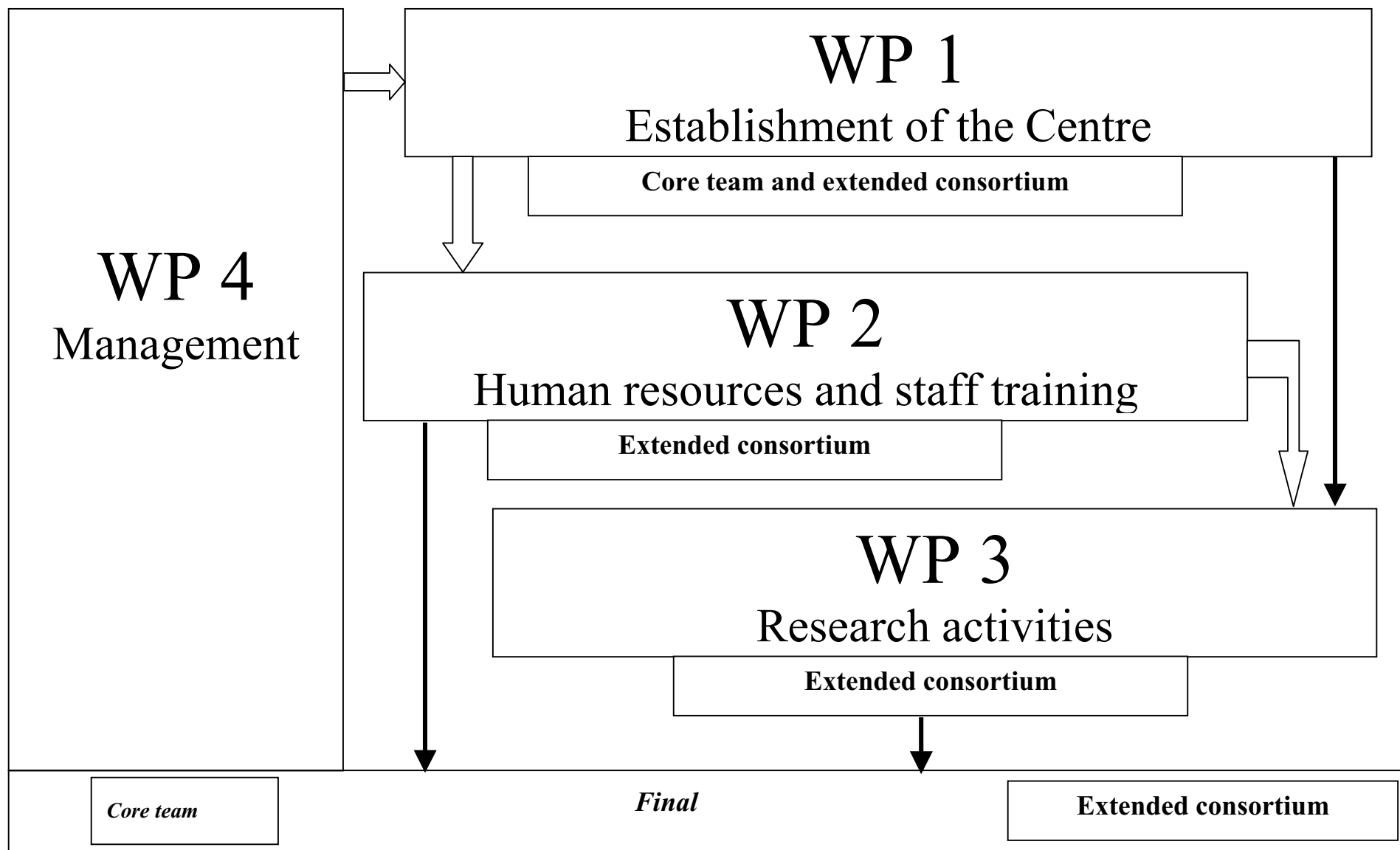
- **WP2** aim is to provide the human resources necessary for the integrated research and transport staff training. The support activities are connected: first, with creating databases related to human resources providing, e.g. files of researchers' C.V.s, lists of publications, lists of books published and dissertations developed for the past 10 years, a list of Ph.D. students, a list of patents awarded, a list of the UT and MFK partners from other countries, a list of consultants who can be invited for projects assessment, etc.; second, with developing courses intended for university students and transport staff life long learning. The management tasks for this WP refer to forming a number of working and expert groups on the base of personal scientific interests and competences as well as on interdisciplinary principle for developing more complex projects. The groups will be announced on the project website but they will not be not constant but flexible units: the purpose is to orient the RRTC members and outer organizations in finding partners working in particular fields of applied sciences and engineering. The challenge in WP2 will be the organization of pilot courses both in Bulgaria and Serbia and Montenegro with international participants. There is a risk in finding students and trainees from the organizations interested in increasing the qualification of their staff.

- **WP3** is the most essential part of the project. The working and expert groups or teams formed will make a study on the most topical issues of the surface transport in the Balkan region and on that base the project team has to develop the Center work program for the second year. The management team has to organize not only the meeting for approving the program but also its implementation in practice. The risk consists in the danger to involve too many projects and take up to solve problems that need new equipment or period longer than 9-12 months to be completed.

The main supporting activity within WP3 will be to develop the projects included in the Center program. The nature of research should be limited to developing computer-aided innovative methods of testing and examination of railway equipment and infrastructure improvement. The projects objectives can be oriented both to theoretical and experimental examinations. The risk can be in a possible delay to complete the study/experiments due to reasons out of working and expert groups. The results of the research projects should be reported at the Regional Conference that will finalize the project as well as at other scientific forums of national and international character. They can be published in books, journals and Proceedings, on the project website and specially prepared CDs.

- **WP4** is dedicated to providing successful overall management of the project and coordination of the Center activities. The priority tasks will be connected with financial providing of tasks/events and administrative issues. The management will be based on the legal regulations and specific rules included in the basic documents of the Center. The WP team will have to link all the project components and maintain communications with the Commission.

b) Work planning, showing the timing of the different WPs and their components

c) Graphical presentation of the components showing their interdependencies

*d) Detailed work description broken down into workpackages:***Workpackage list (full duration of the project)**

Work-package No ¹	Workpackage title	Lead contractor No ²	Person-months ³	Start month ⁴	End month ⁵	Deliverable No ⁶
WP 1	Establishment of the Centre	1 (2)	19	1	6	D1 D2
WP 2	Human resources and staff training	1 (2)	26	7	18	D3 D4 D5
WP 3	Research activities	1 (2)	56	7	24	D6 D7 D8 D9
WP 4	Management	1 (2)	24	1	24	
	TOTAL		125			

Note: The number in brackets is for the deputy lead contractor.

¹ Workpackage number: WP 1 – WP n.

² Number of the contractor leading the work in this workpackage.

³ The total number of person-months allocated to each workpackage.

⁴ Relative start date for the work in the specific workpackages, month 0 marking the start of the project, and all other start dates being relative to this start date.

⁵ Relative end date, month 0 marking the start of the project, and all ends dates being relative to this start date.

⁶ Deliverable number: Number for the deliverable(s)/result(s) mentioned in the workpackage: D1 - Dn.

Deliverables list (full duration of the project)

Deliverable No ⁷	Deliverable title	Delivery date ⁸	Nature ⁹	Dissemination level ¹⁰
D 1	Launch phase: on-line and on-site survey on the experience of similar centers in Europe and in the region	1-4	O	PP
D 2	Kick off meeting: Development of the Centre Statute and Strategy	5-6	O	PP
D 3	Human resources database creating	7-12	O	PP
D 4	Forming of working and expert groups	13-14	O	PP
D 5	Development of strategy for university and qualification courses and life long learning for railway professionals	13-18	O	PP
D 6	Study, analysis and mapping of the surface transport problems in the Balkan region	7-12	O	PP
D 7	Meeting on the Center work program development	13-14	O	PP
D 8	Development of innovative methods of railway equipment examination, testing and improvement	15-24	O	PP
D 9	Information providing and dissemination. Regional conference	7-24	O	PU

⁷ Deliverable numbers in order of delivery dates: D1 – Dn

⁸ Month in which the deliverables will be available. Month 0 marking the start of the project, and all delivery dates being relative to this start date.

⁹ Please indicate the nature of the deliverable using one of the following codes:

R = Report
P = Prototype
D = Demonstrator
O = Other

¹⁰ Please indicate the dissemination level using one of the following codes:

PU = Public
PP = Restricted to other programme participants (including the Commission Services).
RE = Restricted to a group specified by the consortium (including the Commission Services).
CO = Confidential, only for members of the consortium (including the Commission Services).

Workpackage description (full duration of the project)

Workpackage number	WP 1	Start date or starting event:	1				
Participant ID	1	2					
Person-months per participant:	14	5					

Objectives

The aim of the WP1 is to establish a regional center for research and education in the field of surface transport. The project team will make an on-line and study on the existing joint (regional) organizations in the EU member countries and will visit some of them to examine their experience in developing projects for sustainable surface transportation. On the base of the data acquisition promoters of the project should work out a draft statute and strategy of the Center activities. The documents will be adopted at a partners' meeting that in fact will set up the new organization based at the University of Transport in Sofia.

Description of work

The study on the existing regional and international institutions dealing with research and staff training for the needs of surface transport will be carried out by the participants from Bulgaria and Serbia. They will form mixed bi-national groups who will make a short visits to institutes similar in their nature and structure to the Center that will be established within the project.

At the same time, the core team of will create a database of educational and research institutions in the Balkan countries, which later can be invited to sign agreements of collaboration and integration and join the Center.

The analysis of the information will be used to develop the drafts of the main documents to regulate the Center activities in compliance with the task for developing sustainable surface transport on the Balkans. The team will consult experts in legal issues and will use samples of statutes and strategies of other regional and international organizations, e.g. the organization of universities in South-Eastern Europe, NGOs, etc.

After elaborating of the drafts, the participants from the University of Transport, Sofia will organize a kick-off meeting in Bulgaria. Its purpose will be to adopt the Center statute and strategy on the base of proposals made preliminarily and the discussions during the sessions.

The Statute and strategy will be published on the further developed website of the project and the launch of the Center will be announced in the mass media in Bulgaria and Serbia and Montenegro.

Deliverables

- Online survey on the existing research and educational institutions in the field of surface transport in Europe;
- Visits to research centers (institutes) to study their experience;
- Creating database of universities and other organizations that further could possibly join the Center;
- Analysis of the data collected;
- Consulting the draft statute with legal experts;
- Developing a draft strategy for the Center;
- Developing a program for the regional meeting in Sofia;
- Organizing the meeting;
- Discussions on the drafts and adopting the statute and strategy of the Center;
- Presenting information for mass media;
- Intermediate report to the Commission.

Milestones¹¹ and expected results

One of the most important expected results in this project is the development of a complete concept of a regional research and training center on the Balkans. Its foundation as a body/institution will be based on the Statute and strategy that will make possible to join the efforts of scientists and specialists to contribute much more effectively to increase the attractiveness of the surface transport on the Balkans. The research and training activities should result in making transport clean, sustainable and comfortable in compliance with the EU standards and programs. The Center will be open for membership and will give a possibility for new short-term research projects and implementation of innovations and new technologies in railway vehicle testing, maintenance and repairs, in information and safety equipment, staff training, etc.

¹¹ Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

Workpackage number	WP 2	Start date or starting event:	7				
Participant ID	1	2					
Person-months per participant:	19	7					

Objectives

The aim of WP 2 is to provide the information on human resources necessary for the center research activities. The databases created and used by the Center will summarize the European standards for high-speed, safe and ecological railway transport; the experience of the European countries in increasing the railway transport attractiveness.

The Center will form working and expert groups for developing research projects on the base of analyzing the data of human resources in applied sciences connected with the surface transport.

Another objective will be to enhance the interpersonal contacts and exchanges of scientists and lecturers, Ph.D. students and junior research staff. At the same time the RRTC will take up a number of actions aiming at improving the staff qualification. It should develop a strategy for university and qualification courses and life long learning for railway professionals. Some of the new/improved courses developed in cooperation and according to the ECTS requirements are to be launched as pilot ones.

Description of work

The formation of databases will be done mostly online and using paper-based national and European resources by the participants from both Bulgaria and Serbia and Montenegro. They will collect, process and analyze the information in compliance with the Center strategy.

The joint project team will make also a survey on the scientists working in the field of surface transport on the Balkans in order to create a database of the human resources and research in the region. This database will consist of CVs and list of the main scientific and technological projects under implementation in the region. The project website will present a possibility of personal contacts within its Forum.

The Center will coordinate the collaboration of regional educational and research institutions and will encourage signing of bilateral and multilateral agreements. It will partially support the exchange of lecturers, Ph.D. students and researchers.

Having provided the information necessary, the Center will form working and expert groups to further research in the field of surface transport. The criteria of grouping will be both the personal scientific interests and competences and the need to apply interdisciplinary approach to examining problems and applying the results obtained in practice.

The participants of the project will also make a survey on the needs of training and develop a strategy of life long learning for the surface transport staff in the region. To meet the increasing requirements to personnel in that economic section, they will jointly design new courses/improve the existing ones both intended for students and specialists working for the railways, transport enterprises, companies, etc. The university courses will be considered with the processes of harmonization and integration in education in Europe, e.g. with the European Credit Transfer system (ECTS).

Deliverables

- Defining the databases to be created;
- Data acquisition and processing;
- Elaborating a special card/ form for creating human resources database;
- Submitting the card/form to potential members of working and expert groups;
- Classification of criteria to form working and expert groups;

- Forming working and expert groups according to the topical needs of the surface transport development in the region;
- Creating a possibility for active personal contacts by the Forum on the project website;
- Support to exchanges of lecturers, Ph.D. students and researchers;
- Survey on the training needs in the region;
- Developing the strategy of life long learning in the field of surface transport;
- Defining the subjects of joint university/qualification courses;
- Announcement of the new/improved courses to institutions and potential customers in the transport section;
- Organizing pilot courses.

Milestones¹² and expected results

The databases created will facilitate the coordination and cooperation in research in the field of surface transport in the Balkan countries. They will be online/via the RRTC accessible for people and institutions who are interested in the problems of providing clean, sustainable, safe and comfortable transport.

The working and expert groups will contribute to increasing the human resources efficiency in the transport research activities. The personal exchanges and the joint courses will enhance the efficiency of research and the processes of harmonization of transport staff training.

¹² Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

Workpackage number	WP 3	Start date or starting event:	7				
Participant ID	1	2					
Person-months per participant:	39	17					

Objectives

The aim of WP 3 is to carry out the research activities of the Center. To develop the RRTC program, it should make a comprehensive study, analysis and mapping of topical issues of the surface transport on the Balkans. The program will be approved during the second regional meeting that will take place in Serbia and Montenegro.

The joint research should be oriented to developing innovative computer-aided methods of testing and examinations on the railway equipment and infrastructure. The results are to be disseminated using conventional and electronic means, mainly on the website of the project.

WP 3 team is responsible for information providing (including the specially designed website), publishing activities (books, papers, Proceedings) and dissemination of results. The main task in this package will be to organize Regional Conference on topical issues of the surface transport on the Balkans.

Description of work

The main problems in transport development on the Balkans will be summarized by the center to be offered as main topics for further research. The studies will be carried out by the participants from Bulgaria and Serbia and Montenegro with the assistance of research and educational institutions that will have joined the Center.

The results of the study will be complied with the EU requirement for transport development to form the Center program, which will be discussed and adopted during the regional meeting organized by the Faculty of Mechanical Engineering in Kraljevo. The meeting will be attended not only by the project participants but also by a number of guests from other Balkan countries.

The RRTC research will be concentrated mainly to the problems of railway transport. The purpose of the particular tasks included in the Center program will be to develop innovative methods for testing and examination of railway equipment and infrastructure. The activities within WP3 will be based on the achievements of participants from the both countries in implementation of information technologies, electronic devices, etc. The results should be offered for implementation to transport companies and industry. Because of that it is recommendable to finish the joint research activities included in the program for a short period, i.e. within the project duration. The particular problems examined in cooperation are to be of common interest and strongly connected with the current needs of transport in the region. To stimulate the research, the WP3 team can organize competitions for the most successful joint research, for the most applicable innovation methods; for Ph.D. students, young researchers, etc.

The WP3 includes also activities for information providing and results dissemination. The Center will maintain a specially designed website and support the researchers and lecturers to publish books, Proceedings, advertising materials. The website and databases should be updated continuously during the project duration. The core team will try to find a possibility to keep on the website after the end of the project as a necessary and reliable means of connection of the scientists from the Balkan countries. To make the contacts more efficient, the Webmaster should design a forum on the project.

The results of the research will be presented at the Regional Conference, which will take place in Sofia during the 23rd/24th month of the project implementation. It will be organized with the joint efforts of the core team and WP4 team but will rely also on the assistance of the other WP teams.

The participants from Serbia will take part in all activities planned within this WP. They will have a particular part in organizing the Conference, which it is thought to be not only a closed partners' meeting to prepare the final reports on the project. The ambition of the Center partners is to turn it into one of the most

significant scientific events in the region. The forum will be dedicated to the most topical issues of the surface transport on the Balkans.

The Call for papers will be announced right after the approval of the Center program. The Conference will be open for researchers, university lecturers and interested organizations both from the Balkans and other European countries. However, the participation in the conference will be free only for representatives of the partner universities and the other research and educational institutions, which will have joined the Center according to the regulations of partnership.

Deliverables

- Surveys on the current state of the surface transport on the Balkans to outline the most important and urgent problems to be solved using scientific approaches;
- Systemizing the objectives put in the national transport policies and programs in the countries in the region to find out problems of common interest;
- Comparing the current state of transport with the requirements of the EU requirements for sustainable development of the pan-European transport corridors and surface transport system to choose the topics for joint research projects;
- Developing the Center program containing the tasks on research and staff training to be completed during the second year of the project;
- Meeting of the project core team and representatives of other institutions interested in research and training in the field of surface transport to discuss and approve the RRTC program;
- Encouraging the joint research in the Balkan countries by competitions for PhD students, young scientists, cooperation with industry or transport companies, etc.;
- Developing innovative methods for examination and testing of railway equipment and infrastructure to be applied for further research within short-term joint projects;
- Dissemination of the results achieved by the working and expert groups with the Center;
- Information about the possibilities of joint activities for the scientists and university lecturers, which can be supported by the RRTC on the website of the projects, through the members of the Center, national mass media, etc.
- Creating, keeping and updating of the website and databases included on it;
- Publishing books, collection of lectures, booklets and other advertising materials;
- Disseminating the results of the research and other activities;
- Organizing Regional Conference;
- Announcing the winners in the competitions organized by the Center;
- Preparing proceedings.

Milestones¹³ and expected results

The survey on the current state of transport on the Balkans will create a realistic picture of its needs for research in order to meet the EU requirements of safety and sustainability. The databases will define the scope of the Center Program, which should specify the research tasks to be carried out by the working and expert groups.

The results/products of research will be offered to the governmental organizations, public and private companies/enterprises for implementation in order to contribute to the harmonization of the surface transport

¹³ Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

in the region with the European system.

The dissemination of the research activities will be done by the project website, CDs, Conference proceedings, papers in journals, writing books, etc.

The Regional Conference will report for the results of the project and at the same time it will be the most evident prove of the project successful completion.

Workpackage number	WP 4	Start date or starting event:	1				
Participant ID	1	2					
Person-months per participant:	18	6					

Objectives

The aim of WP4 is to accomplish the overall management and coordination at consortium level. It has to link together all the project components and maintain the communication with the Commission.

The WP team should contribute to the successful completion of all activities carried out by the Centre.

Description of work

The WP4 will cover all aspects of consortium management: legal, contractual, financial and administrative. The particular management tasks will be carried out by the WP team but the final decisions will be made by the core team with consensus. Most of the activities will be done in Sofia where the Center will be seated.

To carry out the management activities successfully, the WP4 team may need to employ dedicated staff covering a range of skills needs.

Deliverables

- Administrative management;
- Co-ordination at consortium level of technical activities;
- Developing a strategy for partnership and signing contracts with new members of the Center;
- Developing a detailed financial plan;
- Monitoring on the progress of the activities included in WP1, WP2 and WP3;
- Monitoring on the integrated research included in the Center program;
- Overseeing the promotion of gender equality in the project;
- Overseeing the science and society issues related to the research activities conducted within the project;
- Communication with the Commission;
- Intermediate report on the activities during the first year of the project;
- Obtaining audit certificates by each of the participants;
- Final report on the project completion for the Commission.

Milestones¹⁴ and expected results

The results expected in WP4 will be connected with the overall management of the project. It should lead to successful accomplishment of the strategy of the RRTC.

The Intermediate report on the activities completed during the first year of the project will be a milestone that will show the relevance of the objectives set and the results achieved. The intermediate report will be discussed at the meeting for the Center Program approval, which should be developed taking into account the main conclusions and recommendations

¹⁴ Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

B.7 Other issues

The work of the Centre is to be guided by researchers from relevant Universities, and it should have string influence on improvement of education at all levels. The results of investigations, knowledge gained in contacts with institutions from well-developed part of Europe will enter into University courses curricula, improving quality of studies.

It is of great importance that the project is to be carried out in phase where Balkan countries are making th eir first steps into Bologna process implementation, because goals of teachers and student mobility and unifying of research efforts has the same essence.

The project also considers of gender issues: it is the fact women presence at Universities is larger then at leading positions in research. The project is to be lead by woman, and to include women as project group managers in significant proportion, in strong belief that it is the true manner for promoting equal opportunities.

Information required from applicants on the ethical aspects of the proposed research project

A. Applicants are requested to fill in the following table:

Does your proposed research raise sensitive ethical questions related to:	YES	NO
• Human beings		X
• Human biological samples		X
• Personal data (whether identified by name or not)		X
• Genetic information		X
• Animals		X

B. Applicants are requested to confirm that the proposed research does not involve the following

Does your proposed research involve :	YES	NO
Research activity aimed at human cloning for reproductive purposes,		X
Research activity intended to modify the genetic heritage of human beings which could make such changes heritable ¹⁵ ;		X
Research activity intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer;		X
Research involving the use of human embryos or embryonic stem cells with the exception of banked or isolated human embryonic stem cells in culture ¹⁶ .		X

¹⁵ Research relating to cancer treatment of the gonads can be financed.

¹⁶ Applicants should note that the Council and the Commission have agreed that detailed implementing provisions concerning research activities involving the use of human embryos and human embryonic stem cells which may be funded under the 6th Framework Programme shall be established by 31 December 2003. The Commission has stated that, during that period and pending establishment of the detailed implementing provisions, it will not propose to fund such research, with the exception of the study of banked or isolated human embryonic stem cells in culture.